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ADE & COMPANY INC.
2157 Henderson Highway
WINNIPEG, MB R2G1P9
CANADA

EXAMINER
KELLOGG, MICHAEL S

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHAWN SCHAERER, MARK ALEXIUK, GORD SCARTH, JOHN K. SAUNDERS, and MEIR DAHAN

Appeal 2015-007817
Application 13/012,164
Technology Center 3700

Before STEFAN STAICOVICI, EDWARD A. BROWN, and ARTHUR M. PESLAK, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Shawn Schaerer et al. (Appellants)[1] appeal under 35 U.S.C. § 134(a) from the Examiner's non-final decision rejecting claims 1, 12, 13, 24, 27, 28, 30, 33, 36, 46, 47, 49, 65, and 66.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] The Appeal Brief identifies IMRIS Inc. as the real party in interest. Appeal Br. 1.

[2] Claims 2–11, 14–23, 25, 26, 29, 31, 32, 34, 35, 37–45, 48, and 50–64 have been cancelled. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The disclosure "relates to an MR compatible stereoscopic viewing device for use in the bore of a magnet and to its cooperation with MR images and with a robot surgical system." Spec. 1:3–5. Claims 1 and 66 are independent. Claim 1 is illustrative of the claimed subject matter, and reads:

> 1. Apparatus for imaging a part of a patient comprising:
>
> [a.] an MR imaging system including a magnet having a closed bore within which the part of the patient is located during MR imaging;
>
> [b.] a surgical microscope for receiving light from the part of the patient, the surgical microscope including stereoscopic viewing components arranged for use in generating 2D and 3D images, the surgical microscope being adjustable to change at least a field of view;
>
> [c.] a display for viewing of images generated from the light received from the part of the patient;
>
> [d.] and a control system for controlling the surgical microscope and for generating the images;
>
> [e.] a communication arrangement for communicating between the surgical microscope and the control system;
>
> [f.] wherein the surgical microscope includes a mount arranged to locate the surgical microscope within the closed bore of the magnet during the MR imaging, the mount being arranged to provide adjustable movement of the surgical microscope within the bore:
>
> [g.] wherein the surgical microscope, control system and the communication arrangement are compatible with the magnet so as to allow simultaneous communication and MR imaging;
>
> [h.] wherein the control system is arranged to change at least zoom and focus of the surgical microscope;
>
> [i.] wherein an illumination source is integrated into the surgical microscope to illuminate viewing of the part of the patient:
>
> [j.] wherein the surgical microscope includes an imaging/encoding device for encoding light from the surgical

> microscope from the part of the patient into digital information which is located near the patient in the bore of the magnet;
>
> [k.] wherein there is provided an RF enclosure around the surgical microscope and the imaging/encoding device;
>
> [l.] wherein there is provided a magnetic shield around or adjacent the surgical microscope and the imaging/encoding device to prevent the magnetic field from affecting the surgical microscope and the imaging/encoding device;
>
> [m.] and wherein the surgical microscope including the imaging/encoding device is formed of materials which are compatible with the magnetic field.

Appeal Br. 13–14 (Claims App.) (identifiers added).

REJECTIONS

1. Claims 1, 12, 13, 24, 27, 28, 30, 33, 36, 46, 47, 49, and 66 are rejected under 35 U.S.C. § 103(a) as unpatentable over Sutherland (US 2004/0111183 A1, published June 10, 2004).[3]

2. Claims 1, 12, 13, 24, 27, 28, 30, 33, 36, 46, 47, 49, and 66 are rejected under 35 U.S.C. § 103(a) as unpatentable over Sutherland and L. Sevgi, "Electromagnetic Screening and Shielding-Effectiveness (SE) Modeling," *IEEE Antennas and Propagation Magazine,* 51 (1), 211–16 (Feb. 2009) (hereinafter "Sevgi").[4]

3. Claim 65 is rejected under 35 U.S.C. § 103(a) as unpatentable over Sutherland and Kirsch (US 4,187,051, issued Feb. 5, 1980).

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[3] As explained in the Examiner's Answer, the heading of the rejection in the Non-Final Action omits claims 27, 28, 30, 33, 36, 46, 47, 49, and 66, although these claims are addressed in the text of the rejection. Ans. 2–3; *see* Non-Final Act. 4–13. The rejection heading presented in the Answer corrects this omission. Ans. 3.

[4] Footnote (3) also applies to this rejection.

4. Claim 65 is rejected under 35 U.S.C. § 103(a) as unpatentable over Sutherland, Sevgi, and Kirsch.

ANALYSIS

Claims 1, 12, 13, 24, 27, 28, 30, 33, 36, 46, 47, 49, and 66 as unpatentable over Sutherland

Claims 1, 12, 13, and 24

Sutherland discloses a robotic system compatible with a magnetic resonance (MR) imaging system. Sutherland ¶ 27. Figure 1 depicts a robotic system comprising, *inter alia*, robot manipulator 10 including manipulator arms 102, 103, field camera 24, stereo microscope 13, and MRI imaging system 14. *See also id.* ¶ 96.

Appellants acknowledge that Sutherland discloses use of a surgical microscope (i.e., stereo microscope 13) (Appeal Br. 5 (citing Sutherland ¶ 101)), but contend Sutherland does not disclose, in relation to the surgical microscope, certain features of claim 1 (*id.* at 6). These features correspond to the limitations labeled "f," "g," "j," "k," "l," and "m" in annotated claim 1 reproduced above.

The Examiner finds that Sutherland teaches limitations "k," "l," and "m" in claim 1. Non-Final Act. 8 (citing Sutherland ¶¶ 45, 48). These paragraphs in Sutherland disclose: "[t]he robot and field camera are designed to be compatible with the MR environment" (Sutherland ¶ 45); "*[a]ll equipment* exposed to the MR field uses compatible materials" (*id.*, emphasis added); and "*[a]ll electronics* are RF and magnetically shielded" (*id.* ¶ 48, emphasis added)).

Regarding RF and magnetic shielding, Sutherland describes that "[t]he stereo microscope includes two separate imaging systems one for each channel which are transmitted through suitable connection to the display **17** at the work station." Sutherland ¶ 101. From this description, we understand that the stereo microscope would include electronics to enable such transmission to display 17. *See also* Sutherland, Fig. 1. Although paragraph 48 of Sutherland discloses that "[a]ll electronics are RF and magnetically shielded," we understand that "all electronics" pertains to "[a]ll equipment exposed to the MR field" recited in paragraph 45. This description does not establish by a preponderance of the evidence that Sutherland discloses "an RF enclosure *around the surgical microscope and the imaging/encoding device*" and "a magnetic shield *around or adjacent the surgical microscope and the imaging/encoding device*," as recited in claim 1. Appeal Br. 14 (Claims App.) (emphasis added).

Appellants also contend that Sutherland does *not* disclose that the *microscope* is compatible with the MR environment, and this omission "must be a disclosure that the microscope is NOT so compatible." Appeal Br. 7. We agree that paragraph 45 of Sutherland does not describe explicitly that the surgical microscope is "designed to be compatible with the MR environment."

The Examiner responds by citing "newly presented" prior art, which, according to the Examiner, provides evidence that MR compatible surgical microscopes were known prior to the date of Appellants' invention. Ans. 15–18. But even assuming this prior art shows that MR compatible surgical microscopes were known prior to the date of Appellants' invention, the Examiner indicates that this prior art is not being used in a combination

under 35 U.S.C. § 103(a). *Id.* at 15. Moreover, this prior art does not establish that *Sutherland's* surgical microscope is necessarily compatible with an MR environment.

Sutherland discloses that the function of the robot and tools are "integrated with a microscope which is placed behind the robot base, *except when the robot is in stereotaxy mode and has moved down the bore of the MRI system.*" Sutherland ¶ 27 (emphasis added). Appellants contend that this disclosure means that the microscope is *not* used when the robot has moved down the bore of the MRI system. Appeal Br. 9. In contrast, the Examiner states that this disclosure indicates "where the microscope is not and does not teach where it is." Ans. 25. We agree with the Examiner that this disclosure in Sutherland simply does not indicate where the microscope is located when the robot has moved down the bore of the MRI system.

The Examiner determines that Sutherland specifies that it uses "a surgical microscope of the type known in the art," and thus, the microscope "is fully capable of being used in the bore and is MR compatible/shielded." Ans. 23–24.

Additionally, the Examiner takes the position that even presuming Sutherland's surgical microscope is not compatible and shielded for use in the bore of an MRI system:

> Sutherland expressly discloses that all his materials which are subject to the MR field (*notably not limited to the peak field, or the field in the bore) are MR compatible and appropriately shielded* at [paragraphs] [0045]–[0048]. Thus [Appellants'] alleged intended use . . . would not cause the surgical microscope to *not be exposed to the MR field* and would not cause the microscope not to be subject to [paragraphs] [0045]–[0048].

Ans. 24 (emphasis added).

We understand the Examiner's additional position to be that the claimed "intended use" of the surgical microscope in the bore of the magnet would not cause Sutherland's surgical microscope not to be exposed to the MR field even if it were not exposed to the magnetic field in the bore of the magnet. However, claim 1 calls for "a magnetic shield *around or adjacent the surgical microscope and the imaging/encoding device* to prevent the magnetic field from affecting the surgical microscope." Appeal Br. 14 (Claims App.) (emphasis added). We construe this limitation as relating to when the surgical microscope is *within* the bore of the magnet.

Sutherland describes that "[t]he bore **31** is relatively small allowing a commercially available patient table **32** to carry the required portion of the patient into the bore to the required location within the bore." Sutherland ¶ 121. Figure 10 shows patient table 32 and head restraint 35 fixed to the patient's head located partially within bore 31 of magnet 30 of MRI system 14. *See id.* ¶¶ 121, 124. Figure 11 shows a patient with head restraint 35 supported on table 32 moved to the operating position. *See id.* ¶ 124. "At the operating position on the table **32** is located the microscope **33** on the stand **34** which is moved to position the microscope to view the operating site at the operating location on the table **32**." *Id.* ¶ 125, Fig. 11. Sutherland does not describe that microscope 33 is within bore 31 of magnet 30.

Claim 1 recites that "the surgical microscope includes a mount arranged *to locate the surgical microscope within the closed bore of the magnet during the MR imaging*." Appeal Br. 13 (Claims App.) (emphasis added). Although Sutherland discloses that "[t]he use of robotics in microsurgery allows for precise motions that can be guided by microscope and/or MR images obtained during the surgical procedure" (*id.* ¶ 36),

Sutherland does not explicitly describe that the microscope images are obtained during a surgical procedure with microscope 33 located in bore 31 of magnet 30. We also are unable to find any description in Sutherland that stereo microscope 13 is located within the bore of the magnet during MR imaging.

For the above reasons, we are persuaded by Appellants that some of the Examiner's findings with regard Sutherland are not supported by a preponderance of the evidence. Absent this factual basis, the Examiner does not provide adequate reasoning with a rational underpinning to support the conclusion of obviousness for claim 1. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (*citing In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Accordingly, we do not sustain the rejection of claim 1, and claims 12, 13, and 24 depending therefrom, as unpatentable over Sutherland.

Claims 27, 28, 30, 33, 36, 46, 47, 49, and 66

In rejecting claim 66, the Examiner relies on the same findings and reasoning with regard to those limitations in claim 66 that are also in claim 1. Final Act. 11. Accordingly, for the same reasons discussed above for claim 1, we do not sustain the rejection of claim 66, and claims 27, 28, 30, 33, 36, 46, 47, 49 depending therefrom, as unpatentable over Sutherland.

Claims 1, 12, 13, 24, 27, 28, 30, 33, 36, 46, 47, 49, and 66 as unpatentable over Sutherland and Sevgi

Claims 1, 12, 13, and 24

Appellants indicate that claims 12, 13, and 24 stand or fall with claim 1. Appeal Br. 5. We select claim 1 as representative, and claims 12, 13, and 24 stand or fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

In rejecting claim 1, the Examiner alternatively determines that limitations "k," "l," and "m" identified above, and positioning and operating Sutherland's surgical microscope in the bore of the magnet of its MRI system to produce real-time images of the surgical site, would have been obvious to one of ordinary skill in the art. Non-Final Act. 8–9. Particularly, the Examiner finds Sutherland teaches that the optical assembly is intended to produce real-time images of the surgical site (*id.* at 8 (citing Sutherland ¶ 39)), the surgical site may be located within the bore of an MR system (*id.* (citing Sutherland, Abst.)), and the components of the system are generally MR compatible and magnetically and RF shielded (*id.* (citing Sutherland ¶¶ 45, 48)), but that Sutherland does not explicitly state that the shielding is sufficient to use the microscope inside the bore of the MR magnet during MR operation (*id.* at 8–9). The Examiner states, however, that determining the proper level of electromagnetic (EM) shielding required to prevent detrimental interference from external electric or magnetic fields is well known in the art. *Id.* at 9. In support, the Examiner references Sevgi. *Id.* The Examiner concludes that, in view of Sevgi's teachings, it would have been obvious to apply proper EM shielding in Sutherland to protect the microscope, and other components, from destructive levels of interference and allow the system to properly function in the presence of such interference. *Id.* The Examiner adds that "appropriately shielding the components allows them to be compatible with the magnet and indeed used in the bore during imaging." Ans. 18.

Appellants do not present any argument that addresses the Examiner's proposed combination of the teachings of Sutherland and Sevgi. *See* Appeal Br. 5–11. Consequently, because Appellants fail to identify an alleged error

in the Examiner's findings, or in the Examiner's rationale for modifying Sutherland to result in the apparatus recited in claim 1, we sustain the rejection of claims 1, 12, 13, and 24 as unpatentable over Sutherland and Sevgi.[5]

Claims 27, 28, 30, 33, 36, 46, 47, 49, and 66

Appellants indicate that claims 27, 28, 30, 33, 36, 46, 47, and 49 stand or fall with claim 66. Appeal Br. 5. We select independent claim 66 as representative, with claims 27, 28, 30, 33, 36, 46, 47, and 49 standing or falling with claim 66.

Appellants point out that claim 66 recites all limitations of claim 1 and, additionally, recites the limitations "a surgical robot system . . . surgical tools," "wherein the surgical microscope is mounted on a support arm . . . support arm," and "wherein the support arm is movable . . . robotic arms." Appeal Br. 11–12, 17–18 (Claims App.). Regarding these additional limitations of claim 66, the Examiner finds that Sutherland discloses a surgical robot system including robotic arms 102, 103. Non-Final Act. 10–11.

Appellants do not present any argument that addresses the Examiner's combination of Sutherland and Sevgi for claim 66. Consequently, Appellants fail to identify an alleged error in the Examiner's findings, or in

[5] *See In re Jung*, 637 F.3d 1356, 1365–66 (Fed. Cir. 2011) (discussing the longstanding practice of the Board to require an Appellant to identify the alleged error in an Examiner's rejection, with the panel then reviewing the rejection for error based upon the issues identified by Appellant, and in light of the arguments and evidence produced thereon) (citing *Ex parte Frye*, 94 USPQ2d 1072 (BPAI 2010) (precedential)).

the Examiner's rationale for modifying Sutherland in view of Sevgi to result in the limitations in claim 66 that are also recited in claim 1.

Appellants contend that Sutherland does not disclose a movable support arm in the bore. Appeal Br. 12. However, claim 66 does not recite this limitation. Limitations that do not appear in the claims cannot be relied upon for patentability. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982). Accordingly, this contention is also not persuasive. Thus, we sustain the rejection of claim 66 and dependent claims 27, 28, 30, 33, 36, 46, 47, and 49 as unpatentable over Sutherland.

Claim 65 as unpatentable over Sutherland and Kirsch

Claim 65 depends from claim 66. The Examiner's use of Kirsch to reject claim 65 does not cure the deficiencies of the rejection of claim 66 as unpatentable over Sutherland. Non-Final Act. 13–15. Accordingly, we do not sustain the rejection of claim 65 as unpatentable over Sutherland and Kirsch.

Claim 65 as unpatentable over Sutherland, Sevgi, and Kirsch

Appellants indicate that claim 65 falls with claim 66. Appeal Br. 5. Accordingly, we sustain the rejection of claim 65 as unpatentable over Sutherland, Sevgi, and Kirsch for the same reasons as those for the rejection of claim 66 as unpatentable over Sutherland and Sevgi.

DECISION

We reverse the rejection of claims 1, 12, 13, 24, 27, 28, 30, 33, 36, 46, 47, 49, and 66 under 35 U.S.C. § 103(a) as unpatentable over Sutherland.

We affirm the rejection of claims 1, 12, 13, 24, 27, 28, 30, 33, 36, 46, 47, 49, and 66 under 35 U.S.C. § 103(a) as unpatentable over Sutherland and Sevgi.

We reverse the rejection of claim 65 under 35 U.S.C. § 103(a) as unpatentable over Sutherland and Kirsch.

We affirm the rejection of claim 65 under 35 U.S.C. § 103(a) as unpatentable over Sutherland, Sevgi, and Kirsch.

No time period for taking any subsequent action in connection with this appeal may be extended according to 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED